

## IN THE SPECIFICATION

Please replace the paragraph beginning at page 5, line 26 with the following amended paragraph:

Figures 6A-6D provide provides a comparison of normalized spectral power during saline infusion and during GLP-1 infusion. Figures 6A and 6B show shows a comparison of normalized spectral power during saline infusion (6A) and GLP-1 infusion (6B) in a subject with IGT (D02). Figures ~~6B~~ 6C and 6D shows a comparison of normalized spectral power during saline infusion (6C) and GLP-1 infusion (6D) in a subject with NIDDM (D07).

Please replace the paragraph beginning at page 21, line 16 with the following amended paragraph:

In normal subjects each pulse of glucose is tightly coupled to a pulse in ISR. This coupling has previously been shown to be defective in subjects with IGT. Profiles of glucose and ISR during the oscillatory glucose infusion with saline from ~~one~~ representative subjects with IGT, D01 and D02, are shown in Figure 3A and 3C. These results demonstrate that in subjects with IGT, during saline infusion, there is loss of the tight coupling between glucose and ISR with many glucose independent oscillations in ISR. In the presence of physiological postprandial levels of GLP-1 (Figures 3B and 3D), the pattern of insulin secretory responses to glucose is improved in the subject with IGT, with each pulse in glucose followed by a pulse in ISR. Hence, GLP-1 improves the ability of the  $\beta$ -cell to entrain an exogenous glucose infusion in the subject with IGT.

Please replace the paragraph beginning at page 21, line 30 with the following amended paragraph:

Figures 4A-4D show shows the profiles of glucose and ISR from ~~one~~ two subject with NIDDM, D07 and D09. In marked contrast to subjects with IGT, despite the lowering of plasma glucose concentrations and the maintenance of ISR, the pattern of insulin secretory responses to glucose was not improved during the GLP-1 infusion

(Figures 4B and 4D), with many glucose independent oscillations in ISR persisting. Profiles of glucose and ISR during the oscillatory glucose infusion with saline are shown in Figures 4A and 4C.

Please replace the paragraph beginning at page 22, line 29 with the following amended paragraph:

Spectral analysis of the oscillatory glucose profiles confirmed the existence of peaks in the plasma glucose spectra at 144 minutes corresponding to the period of exogenous glucose infusion. Individual power spectra for glucose and ISR in one subject with IGT (Figures 6A and 6B) and one subject with NIDDM (Figures 6B 6C and 6D) during saline infusion and during GLP-1 infusion are shown in Figures 6A –6D. These correspond to the data shown in Figures 3C and 3D and Figures 4A and 4B. Spectral power increased from 0.6 to 8.9 in the IGT subject and was minimally changed from 0.28 to 1.51 in the subject in the subjects with NIDDM. Peaks in plasma glucose spectra occurred at 144 minutes. During saline infusion the dominant spectral peak for ISR did not occur at 144 minutes, but rather was at 0.2. Spectral power with GLP-1 infusion was 1.5.